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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,876

05/23/2007

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EXAMINER

BOURKE, ALLISON

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

09/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,876	Applicant(s) BLYTH ET AL.	
	Examiner Allison Bourke	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>4/17/2006, 5/23/2007</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Remark

1. Claims 1-15 are pending in the application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8, 10, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura (EP 1117137).

Regarding claim 1, Nakamura discloses an electroactive photonic device (Fig. 1, [0012]) comprising a substrate (50a), at least one cathode layer (10a), at least one anode layer (40a), and at least one layer of active material (20) based on organic compounds [0046-0047] and interposed at least partially between the anode and cathode layers (Fig. 1), the said layers being arranged on the substrate (Fig. 1) in a predetermined configuration such that the device can convert luminous energy into electrical energy [0006], characterized in that the substrate is made of float glass [0028].

Regarding claims 2-8, 10, 12 and 14, Nakamura additionally discloses

- the substrate is made of tempered glass [0070]
- the electrode layers (10a, 40a) that are interposed between the substrate (50a) and the layer of active material (20) are transparent to luminous radiation [0012].

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- the cathode and anode layers (10a, 40a) are transparent to luminous radiation [0012].
 - the transparent electrode layers (10a, 40a) are made of metal [0025, 0060] and are thin enough to allow light to be transmitted through them [0062].
 - the anode layers (40a) are made of gold [0025]
 - the cathode layers (10a) are made of aluminum [0060]
 - a hole-transport layer (30) interposed between the anode layers (40a) and the layer of active material (20)
 - an electron-transport layer (60, [0064]) interposed between the cathode layers (10a) and the layer of active material (20)
 - the electroactive photonic device characterized in that it is at least partially covered by an encapsulation layer (second, top 50a in Fig. 1)
 - the electroactive photonic device configured as a solar cell [0012]
4. Claims 1, 10-11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Marks et al. (US 2003/0118865).

Regarding claim 1, Marks discloses an electroactive photonic device (Fig. 2A, [0010, 0030]) comprising a substrate (glass), at least one cathode layer (cathode), at least one anode layer (anode), and at least one layer of active material (organic conductive layer, [0010]) based on organic compounds [0010] and interposed at least partially between the anode and cathode layers (Fig. 2A, [0010]), the said layers being arranged on the substrate (Fig. 2A) in a predetermined configuration such that the

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device can convert electrical energy into luminous energy [0010], characterized in that the substrate is made of float glass [0029].

Regarding claims 10-11 and 13, Marks additionally discloses

- an electron-transport layer (ETL) interposed between the cathode layers and the layer of active material (Fig. 2A)
- the electron-transport layer is made of aluminum tris-8-hydroxyquinoline [0030]
- the electroactive photonic device configured as a light-emitting device [0010]

5. Claims 1, 8, 10, 12-13 and 15 rejected under 35 U.S.C. 102(b) as being anticipated by Tahon et al. (US 6309901).

Regarding claim 1, Tahon discloses an electroactive photonic device (OLED, C7/L52-59, C8/L26-45) comprising a substrate (glass plate, C8/L26-45), at least one cathode layer (reflecting anode, C8/L26-45), at least one anode layer (transparent anode, C8/L26-45), and at least one layer of active material (electroluminescent polymer, C8/L26-45) based on organic compounds (C8/L26-45) and interposed at least partially between the anode and cathode layers (C8/L26-45), the said layers being arranged on the substrate (C8/L26-45) in a predetermined configuration such that the device can convert electrical energy into luminous energy (inherent of OLEDs, C7/L52-59) characterized in that the substrate is made of float glass (C3/L19-20).

Regarding claims 8, 10, 12-13 and 15, Tahon additionally discloses

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- a hole-transport layer (hole transport layer) interposed between the anode layers (transparent anode) and the layer of active material (light emitting layer, C8/L26-45)
- an electron-transport layer (electron transport layer) interposed between the cathode layers (reflecting anode) and the layer of active material (light emitting layer, C8/L26-45)
- the electroactive photonic device characterized in that it is at least partially covered by an encapsulation layer (sandwiched between two glass plates, C8/L26-45)
- the electroactive photonic device configured as a light-emitting device (C7/L52-59)
- light-emitting system, in particular, for illumination or indication, characterized in that it comprises a plurality of devices, arranged in a predetermined configuration (color OLEDs can be made by stacking three such basic cells on top of each other, C8/L26-45)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura (EP 1117137) in view of Marks et al. (US 2003/0118865).

Regarding claim 9, Nakamura discloses all the claim limitations as set forth above but does not disclose the hole-transport layer is made of PEDOT-PSS, TPD, PBD, or CuPc.

Marks discloses an electroactive photonic device (Fig. 2A, [0010, 0030]) comprising a substrate (glass), at least one cathode layer (cathode), at least one anode layer (anode), and at least one layer of active material (organic conductive layer, [0010])

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based on organic compounds [0010] and interposed at least partially between the anode and cathode layers (Fig. 2A, [0010]), the said layers being arranged on the substrate (Fig. 2A) in a predetermined configuration such that the device can convert electrical energy into luminous energy [0010], characterized in that the substrate is made of float glass [0029]. Marks additionally discloses a hole transporting layer (HTL, [0030]) comprising TPD.

These references are analogous because both art is directed towards electroactive photonic devices with substrates, cathodes, anodes, an organic active layer, electron transporting and hole transporting layers.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use TPD in the hole transport layer in the device of Nakamura as taught by Marks because it would amount to use of a known element for its intended use in a known environment to accomplish entirely expected result.

Regarding claim 11, Nakamura discloses all the claim limitations as set forth above but does not disclose the electron-transport layer is made of aluminum tris-8-hydroxyquinoline.

Marks discloses an electroactive photonic device (Fig. 2A, [0010, 0030]) comprising a substrate (glass), at least one cathode layer (cathode), at least one anode layer (anode), and at least one layer of active material (organic conductive layer, [0010]) based on organic compounds [0010] and interposed at least partially between the anode and cathode layers (Fig. 2A, [0010]), the said layers being arranged on the substrate (Fig. 2A) in a predetermined configuration such that the device can convert

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electrical energy into luminous energy [0010], characterized in that the substrate is made of float glass [0029]. Marks additionally discloses a electron transporting layer (HTL, [0030]) comprising aluminum tris-8-hydroxyquinoline [0030].

These references are analogous because both art is directed towards electroactive photonic devices with substrates, cathodes, anodes, an organic active layer, electron transporting and hole transporting layers.

It would have been obvious to one having ordinary skill in the art at the time of the invention to use aluminum tris-8-hydroxyquinoline in the electron transport layer in the device of Nakamura as taught by Marks because it would amount to use of a known element for its intended use in a known environment to accomplish entirely expected result.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allison Bourke whose telephone number is (571)270-1232. The examiner can normally be reached on Monday-Thursday 8:30am-5pm and every other Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/
Supervisory Patent Examiner, Art Unit 1753

/A. B./
Examiner, Art Unit 1795